

SERVICE BULLETIN 81

SUBJECT: POSSIBLE CRACKS IN SPINNER BACKPLATES FOR FIXED PITCH WOODEN PROPELLERS

APPLICATION: All Glasair I, II, and II-S aircraft equipped with wooden fixed-pitch propellers

DESCRIPTION: One of our builders has reported a circular crack in his fixed pitch propeller spinner backplate. The location of the crack matches the outside circumference of the propeller extension.

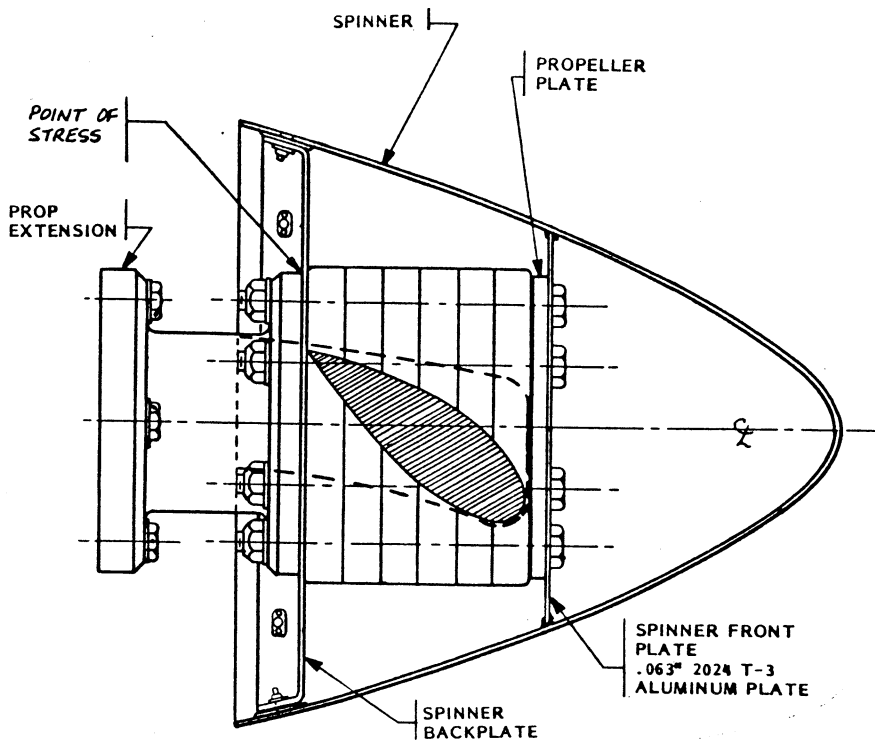


FIGURE (1)

When installed according to the instructions, the spinner backplate fits between the forward surface of the prop extension and the aft surface of the propeller. Typically, the diameter of the propeller hub is greater than the outside diameter of the prop extension flange. When the propeller installation bolts are torqued, the section of the propeller between the propeller plate and the prop extension is compressed slightly. Over time and under varying humidity and temperature conditions the compression can get worse. Consequently, the non-compressed area of the prop hub tends to deform the backplate around the outer edge of the prop extension, placing stress on the backplate at this location, as shown in FIGURE (1). If a sharp corner exists on the prop extension flange, the stress is more concentrated, resulting in greater potential for backplate cracking.

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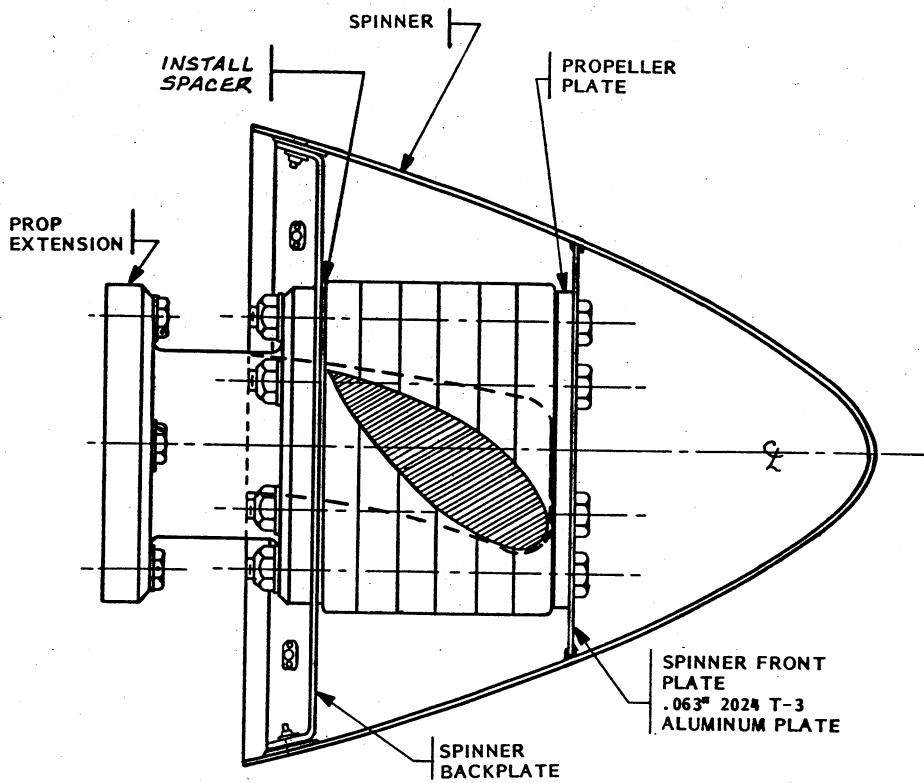


FIGURE (2)

SOLUTION: To prevent the propeller hub from deforming the spinner backplate, fabricate an .032" thick 2024-T3 aluminum spacer the same diameter as the prop extension, and install it between the aft side of the prop and the forward side of the backplate, as shown in FIGURE (2). The wood prop hub can compress around the spacer without transferring the stress to the spinner backplate.

Besides fabricating the spacer, inspect the forward outside circumference of the prop extension to verify that a sharp corner does not exist along this edge. If a sharp corner does exist, carefully use a file to round the corner to a small radius.

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